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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,269	12/01/2003	Murali Basavaiah	ANDIP037	3368

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EXAMINER
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UNELUS, ERNEST

ART UNIT	PAPER NUMBER
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2181

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/726,269	<b>Applicant(s)</b> BASAVAIAH ET AL.	
	<b>Examiner</b> Ernest Unelus	<b>Art Unit</b> 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received

  
FRITZ FLEMING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100  
9/27/2006

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 07/28/06.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

**RESPONSE TO AMENDMENT**

**A. Claims rejected based on 35 U.S.C. 112**

The 35 U.S.C. 112 rejection has been removed due to correction.

**B. Claims rejected based on 35 U.S.C. 101 Double Patenting**

The 35 U.S.C. 101 Double Patenting rejection has been removed due to correction.

**C. Claim rejections based on prior art**

Applicant's arguments filed 07/28/2006 have been fully considered but they are not persuasive.

Page 6 from the applicant's remarks discloses "In other words, the two field are used to identify the originating Host and the target device for a given transaction.

In the prior art, the limitation Host defines both the OX\_ID and the RX\_ID for a given command. Each transaction used to implement the command contains the OX\_ID and the RX\_ID so that the exchanges can be successfully sent and received between the Host and the target. Without the OX\_ID and the RX\_ID, exchanges could not navigate across the switches of the network from the Host to the target or vice versa. The Switches between the host and target simply act as an intermediary, passing the exchanges on between the Host and the target. The Switches do not alter or change the OX\_ID or the RX\_ID."

The applied reference clearly shows exchanges and navigation across the switches of the network from the Host to the target or vice versa; for example, see any of the figures 3-

14. As stated above, the applicant discloses “In other words, the two field (OX\_ID and the RX\_ID) are used to identify the originating Host and the target device for a given transaction”. Similarly, Mullendore, the applied art, discloses “In one embodiment, if the SCSI transport protocol used provides information that identifies the SCSI initiator device for each SCSI task, the Congestion Manager allocates resources fairly among all known SCSI initiator devices” (see paragraph 0054).

Paragraph 0023 from the applicant specification also discloses “To identify an FC device, Fibre Channel Identifiers (FCIDs) are used. A transaction between an FC host and a target is referred to as an exchange. In a typical Fibre Channel network, there are many Hosts and targets. Each Host may initiate many read and/or write operations. For the hosts and targets within a network to keep track of the various transactions between each other, two fields are available in the Fibre Channel header for all SCSI Command, Data, Response, and Transfer Ready frames. The first field is called the Originator Exchange Identifier or OX\_ID. The second field is called the Receiver Exchange Identifier or RX\_ID”.

The applicant clearly discloses “for all SCSI Command, Data, Response, and Transfer Ready frames”; since Mullendore, the applied art, discloses a SCSI Command, Data, Response, and Transfer Ready frames; (see paragraph 0014), which conclude that the applied art does teach OX\_ID and the RX\_ID.

In regards to the OX\_ID or the RX\_ID being modified by the switch, as stated by the applicant in paragraph 0029, the switch, having the processor, does the modification; in the same way, as stated above and well know in the art, Mullendore, the applied art,

discloses “As shown in FIG. 4, for example, when Fast Write is enabled, the initiator-side switch 150 would receive a write command from initiator 135 destined for target 145 and would normally immediately respond to the initiator with an RTT message requesting the write data for the entire write command” (see paragraph 0061). The switch responding to the initiator will also create (modified) a responder identifier. In this case, the switch’s identification is the receiver exchange identifier, as also know as “responder identifier” in the art. A great example of a switch in a SAN using Fibre Channel header to modifying a Receiver Exchange Identifier (responder identifier) is clearly shown by Walter et al. (US pub. 2004/0088574).

## **I. INFORMATION CONCERNING OATH/DECLARATION**

### **Oath/Declaration**

1. The applicant’s oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

## **II. INFORMATION CONCERNING DRAWINGS**

### **Drawings**

2. The applicant’s drawings submitted are acceptable for examination purposes.

## **III. ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT**

As required by M.P.E.P. 609(C), the applicant’s submissions of the Information Disclosure Statement dated July 28, 2006 is acknowledged by the examiner and the cited references have

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been considered in the examination of the claims now pending. As required by M.P.E.P 609 C(2), a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action

#### IV. REJECTIONS BASED ON PRIOR ART

##### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-23** are rejected under 35 U.S.C. 102(e) as being anticipated by Mullendore et al. (US 2003/0185154).

5. As per **claim 1**, Mullendore discloses “an apparatus, comprising: a Switch (150), the Switch including: a port (**paragraph 0027 discloses “the switch device typically includes a processor, a buffer, a first port for coupling to a low speed or TCP/IP based network link”**) configured to receive a write command frame (**write 16MB**) having a header with an OX\_ID or RX\_ID defining an initiating Host (**initiator 135**) and a target (**target 145**) (see fig. 4); a trapping mechanism (**paragraph 0046 discloses the buffer held the command within the switch**) configured to trap the write command frame (**write 16MB**) (see fig. 4) if the write command frame (**write 16MB**) designates a predetermined Host\_ID (**the initiator,135, ID**) and a predetermined target\_ID (**the target, 145, ID**) (each command within a fibre

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**channel protocol discloses the sender and the target identity, as discloses in paragraph 0054.); and a processor (the processor within the switch, as discloses in paragraph 0027) configured to process the trapped write commands by modifying either the OX\_ID or RX\_ID of the write command header (paragraphs 0029 and 0061 discloses the processor within the switch is able partially transfer the write command, which is to modify it. In the art, as also discloses by the applicant in paragraph 0026, a command's address identify where it's coming from and where it's going, which is the originator exchange ID and the responder exchange ID. Every write or read command from an initiator or target has an address that identify the command, as also disclosed in paragraph 0054).**

6. As per **claim 2**, Mullendore discloses “the apparatus of claim 1 (see claim 1 above), wherein the Switch (150) is an initiating Switch coupled to the Host (135) in a first SAN (165) (see fig. 4)

7. As per **claim 3**, Mullendore discloses “wherein the processor of the initiating Switch (165) is further configured to modify the write command before forwarding the write command to the target (145) (paragraphs 0029 and 0061 discloses the processor within the switch is able partially transfer the write command, which is to modify it).

8. As per **claim 4**, Mullendore discloses wherein the initiating Switch (150) is further configured to modify the write command (**write 16MB**) by modifying the OX\_ID value for the write command before forwarding the write command to the target (**paragraphs 0029 and 0061 discloses the processor within the switch is able partially transfer the write command, which is to modify it. In the art, as also discloses by the applicant in paragraph 0026, a**

**command's address identify where it's coming from and where it's going, which is the originator exchange ID and the responder exchange ID. Every write or read command from an initiator or target has an address that identify the command, as also disclosed in paragraph 0054).**

9. As per **claim 5**, Mullendore discloses wherein the initiating Switch (150) uses the initialized RX\_ID value (**XFER\_RDY 256KB**) as a handle for accessing information pertaining to the write command session (**write 16MB**) (see **fig. 4**) in a sessions ID table (**fig. 8 is an example of a session ID table**).

10. As per **claim 6**, Mullendore discloses wherein the processor of the initiating Switch (135) is further configured to issue a Transfer Ready command (**XFER\_RDY 256KB**) to the Host (135) (see **fig. 4**).

11. As per **claim 7**, Mullendore discloses wherein the initiating Switch (150) is further configured to initialize and use the initialized RX\_ID value (**XFER\_RDY 256KB**) for all communication related to the write frame (**16MB**) between the initiating Switch (150) and the Host (135) (see **paragraph 0061 and fig. 4**).

12. As per **claim 8**, Mullendore discloses wherein the initiating Switch (150) is further configured to modify the OX\_ID value (**16MB**) with communications between the initiating Switch (150) and the target (145) (see **fig. 4**).

13. As per **claim 9**, Mullendore discloses wherein the initiating Switch (150) is further



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configured to transfer additional data frames (256KB) (paragraph 0061 discloses that the switch separate the command into smaller portions and send those portions (256KB) separately to the target) to the target (145) when the initiating Switch (150) receives a Transfer Ready command (XFER\_RDY 256KB) associated with the write frame (write 16MB) from the target (see fig. 4).

14. As per claim 10, wherein the Switch (140) is a target Switch coupled to the target (145).

15. As per claim 11, Mullendore discloses wherein the target Switch (140) forwards the write command (16MB) to the target (145) (see fig. 4).

16. As per claim 12, Mullendore discloses wherein the target Switch (140) forwards data frames (128KB) associated with the write command (16MB) to the target (145) after receiving a Transfer Ready command (XFER\_RDY 128KB) from the target (145) (see fig. 4).

17. As per claim 13, Mullendore discloses wherein the target Switch (140) is further configured to buffer the data frames (128KB) prior to receipt of the Transfer Ready command (XFER\_RDY 128KB) see paragraph 0061 and fig. 4.

18. As per claim 14, Mullendore discloses wherein target Switch (140) is further configured to maintain (the buffer inside the switch having a identified data ) a sessions ID table (fig. 8 is an example of a session ID table) and to use the OX\_ID (the data identifier from the host) of the write command as an index to the session corresponding to the write command (see paragraphs 0054 and 0061).

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19. As per **claim 15**, Mullendore discloses wherein the target Switch (140) is further configured to modify the RX\_ID value (**XFER\_RDY 256KB**) for all communication related to the write frame (16MB) between the target Switch (140) and the Host (135). (**paragraphs 0029 and 0061 discloses the processor within the switch is able partially transfer the write command, which is to modify it.**

20. As per **claim 16**, Mullendore discloses wherein the target Switch (140) is further configured to modify the OX\_ID value (**write 16MB**) with communications between the target Switch (140) and the target (145). (**paragraphs 0029 and 0061 discloses the processor within the switch is able partially transfer the write command, which is to modify it.**

21. As per **claim 17**, Mullendore discloses wherein the Switch is further configured to use the RX\_ID value (**XFER\_RDY 256KB**) of trapped write commands (**write 16MB**) to specify the amount of buffer space needed for the write command and use the write command frame to request the needed buffer space (**see paragraph 0061**).

22. As per **claim 18**, Mullendore discloses wherein the Switch (150) is further configured to use the RX\_ID value (**XFER\_RDY 256KB**) of trapped write commands (**write 16MB**) to specify the amount of buffer space larger than needed for the write command and use the additional buffer space for subsequent write commands so that the Switch need not wait for a Transfer Ready command to transfer data related to the subsequent write command (**see paragraph 0061**).

23. As per **claim 19**, Mullendore discloses wherein the Switch (150) is further configured to,

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in the event the Switch does not have sufficient buffer space for the write command (**write 16MB**) (see **paragraph 0064**), to either: (i) generate a busy status signal to the initiating Host; (ii) placing the write command on a pending wait list (**paragraph 0064 discloses, “then switch 150 holds the RTT message until buffer resources become sufficient to receive the entire write data specified by the RTT message ”**) ; or (iii) forwarding the write command to the target (see **paragraph 0070**).

24. As per **claim 20**, Mullendore discloses a first SAN (**360**) including the Switch (**switch A or B**); a second SAN (**365**) including a second Switch (**switch C or D**); and an inter-SAN network (**310**) connecting the first SAN and the second SAN (see **fig. 13**).

25. As per **claim 21**, Mullendore discloses “a method comprising: trapping write commands (**write 16MB**) specifying a predesignated Host ID corresponding to a Host and target ID corresponding to a target and including an OX\_ID value and an un-initialized RX\_ID value at a Switch (**150**) (**In the art, as also discloses by the applicant in paragraph 0026, a command’s address identify where it’s coming from and where it’s going, which is the originator exchange ID and the responder exchange ID. Every write or read command from an initiator or target has an address that identify the command, as also disclosed in paragraph 0054**); configuring the Switch to forward the write command to the target (see **paragraph 0061**); configuring the Switch to initialize the RX\_ID of the write command (**paragraphs 0029 and 0061 discloses the processor within the switch is able partially transfer the write command, which is to initialize it**; and configuring the Switch to generate a

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Transfer Ready command including the initialized RX\_ID value (**XFER\_RDY 256KB**) to the Host (135) as a proxy for the target (145) (see **fig. 4** and **paragraph 0061**).

26. As per **claim 22**, Mullendore discloses the method of claim 21 (see **claim 1** above), further comprising configuring the Switch (140) to forward data frames (**data 128KB**) associated with the write command (**write 16MB**) received in response to the Transfer Ready command (**XFER\_RDY 256KB**) to the target (145) (see **fig. 4**).

27. As per **claim 23**, Mullendore discloses receiving the write command (**write 16MB**) forwarded to the target (145) by the Switch (150) at a second Switch (140); configuring the second Switch (140) to forward the write command to the target (see **fig. 4**); and either: buffering the data frames forwarded to the target by the Switch until a Transfer Ready command is received from the target (see **paragraph 0064**); or forwarding the data frames (**data 128KB**) from the Switch (140) to the target (145) if the Transfer Ready command (**XFER\_RDY 128KB**) has already been received from the Host (140) (see **fig. 4**).

#### **V. RELEVANT ART CITED BY THE EXAMINER**

28. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See **MPEP 707.05(c)**.

**A great example of a switch in a SAN using Fibre Channel header to modifying a Receiver Exchange Identifier (responder identifier) is clearly shown by Walter et al. (US pub. 2004/0088574).**

**Conclusion**

**a. STATUS OF CLAIMS IN THE APPLICATION**

29. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. 707.07(i):

**a(1) CLAIMS REJECTED IN THE APPLICATION**

30. Per the instant office action, claims 1-23 have received a final action on the merits.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**b. DIRECTION OF FUTURE CORRESPONDENCES**

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is (571) 272-8596. The examiner can normally be reached on Monday to Friday 9:00 AM to 5:00 PM.

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**IMPORTANT NOTE**

32. If attempts to reach the above noted Examiner by telephone is unsuccessful, the Examiner's supervisor, Mr. Fritz M. Fleming, can be reached at the following telephone number: Area Code (571) 272-4145.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 25, 2006

Ernest Unelus  
Examiner  
Art Unit 2181

  
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